

### **REMARKS**

Claims 1-34 are pending. Claims 7-9 and 17-23 have been allowed. Claims 31-34 have been cancelled.

The Examiner rejected Claims 1-3 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,148,635 to Beebe et al. ("Beebe '635") in view of U.S. Patent No. 6,393,853 to Vukovic et al. ("Vukovic '853") or in view of U.S. Patent No. 6,729,383 to Cannell et al. ("Cannell '383"). In response to the Examiner's rejection, independent Claim 1 has been amended. Amended independent Claim 1 defines a refrigeration system module for heating and cooling an object requiring, *inter alia*, a first heat exchanger having a first surface, a second heat exchanger having a second surface, and at least one attachment feature disposed on the module wherein the attachment feature is *attached to* the object to be heated or cooled thereby securing the object in thermal communication with the first and second surfaces. The Examiner relies on Vukovic '853 and, in the alternative, Cannell '383, as disclosing the attachment feature required in independent Claim 1. However, neither the attachment feature of Vukovic '853 or Cannell '383 is attached to the object to be heated or cooled.

Vukovic '853 discloses a cooling apparatus comprised of metal cold plates 110 and 120, shown in Fig. 2A, positioned on both sides of electronic module 50, which is the object to be cooled. Cooling plates 110 and 120 of module 50 are positioned within shelf unit 20, shown in Fig. 4A, independent of each other. Tightening of clamps 132 and 134 allow for cold plates 110 and 120 to be in thermal communication with module 50. However, cold plates 110 and 120 are not attached to module 50. This is further evidenced by the fact that when cold plates 110 and 120 are in the released position, module 50 is readily removable from the shelf unit (col. 2, lines 19-23).

Cannell '383 discloses electronic components 48, shown in Fig. 1, as the object to be cooled. Modular housing 50 covers device base plate 57 upon which electronic components 48 are positioned. Modular housing 50 is then attached to manifold 33 via bolts through holes 54 and 56, placing electronic components 48 in thermal communication with cooling fluid 42. However, modular housing 50 is not attached to the electronic components 48.

For the foregoing reasons, Applicant respectfully submits that independent Claim 1, as well as Claims 2-6 which depend therefrom, are not obvious over Beebe '635 in view of Cannell '383 or in view of Vukovic '853.

The Examiner rejected Claim 10 and Claims 13-16 under 35 U.S.C. §103(a) as being obvious over Beebe '635 in view of Cannell '383 further in view of U.S. Patent No. 6,687,122 to Monfarad ("Monfarad '122"). Independent Claim 10 defines a refrigeration system module requiring, *inter alia*, a frame, a heating plate, a cooling plate, an expansion device, and a hermetic compressor assembly, the compressor assembly being disposed between the heating and cooling plates.

The Examiner relies on Monfarad '122 for the disclosure of the hermetic compressor assembly. While Monfarad '122 discloses a hermetic compressor assembly, the compressor assembly of Monfarad '122 is located adjacent to the condenser and evaporator of the invention. Additionally, Monfarad '122 teaches away from combining a hermetic compressor with the compact refrigeration systems of Beebe '635 or Cannell '383. A disclosed advantage of Monfarad '122 is that the system is "compact" (col. 3, line 49) and can be sized to "fit within a rack unit of a conventional computer server or a telecommunications rack." (col. 9, lines 6-7). Placement of the compressor between the heating and cooling plates would necessarily require increasing the distance from one heat exchanger to the other. This increase in distance from evaporator 614 and condenser 620, shown in Monfarad '122 Fig. 8, would increase the size of the unit preventing it from fitting within several of its desired applications. Accordingly, a person having ordinary skill in the art would recognize from the figures and disclosure the intended application of Monfarad '122. Such recognition by a person having an ordinary skill in the art creates a disincentive to place the hermetic compressor between the heat exchangers.

Advantageously, the placement of the hermetic compressor between the heating and cooling plates allows for the heating and cooling plates to occupy substantially all of an exterior side. This allows for not only better utilization of the available exterior surface, but also facilitates a more efficient transfer of thermal energy.

Moreover, independent Claim 10 requires, *inter alia*, that the heating plate, cooling plate, expansion device, and compressor assembly are all fixed to the frame. The Examiner relies on Cannell '383 for disclosing the required frame. However, assuming, *arguendo*, that Cannell '383 discloses a frame, Cannell '383 contains only an evaporator and hence, does not contain the additional limitations required in independent Claim 10.

For the foregoing reasons, Applicant respectfully submits that independent Claim 10, as well as Claims 11-16 which depend therefrom, are not obvious over Beebe '635 in view of Cannell '383 and further in view of Monfarad '122.

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Amendment dated October 20, 2005  
Reply to Office Action dated August 1, 2005

The Examiner rejected Claims 24, 28, 31, and 34 under 35 U.S.C. §102(b) as being anticipated by Beebe '635. Dependant Claim 25, which the Examiner indicated is allowable, has been canceled and the limitations of dependant Claim 25 have been added to independent Claim 24. Applicant respectfully submits that amended independent Claim 24, as well as Claims 26-30 which depend therefrom, are now in condition for allowance.

It is believed that the above represents a complete response to the Official Action and reconsideration is requested. Specifically, Applicant respectfully submit that the application is in condition for allowance and respectfully requests allowance thereof.

In the event Applicant has overlooked the need for an additional extension of time, payment of fee, or additional payment of fee, Applicant hereby petitions therefore and authorizes that any charges be made to Deposit Account No. 02-0385, Baker & Daniels.

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Should the Examiner have any further questions regarding any of the foregoing, the Examiner is respectfully invited to telephone the undersigned at (260) 424-8000.

Respectfully submitted,



Matthew B. Skaggs  
Registration No. 55,814

Attorney for Applicant

MBS/mt

BAKER & DANIELS LLP  
111 East Wayne Street, Suite 800  
Fort Wayne, IN 46802  
Telephone: 260-424-8000  
Facsimile: 260-460-1700

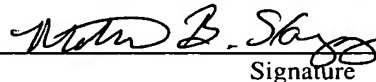
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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on: October 20, 2005

MATTHEW B. SKAGGS, REG. NO. 55,814

Name of Registered Representative

  
Signature

October 20, 2005

Date